

Syllabus for Math 2331, Spring 2013

Linear Algebra

Instructor: Dr. Mark Tomforde

Office: 601 PGH

Instructor Web Site: www.math.uh.edu/~tomforde

Course Web Site: www.math.uh.edu/~tomforde/Math2331S13.html

Office Hours: Monday Noon–1:00PM

Wednesday 2:30–3:45PM (right before class)

Note About Office Hours: I encourage you to come by my office if you have any questions, need help with homework problems, or would just like to talk about the material. If for some reason you are unable to make it to Office Hours, you are welcome to email me to set up an appointment at another time.

Meeting Times: Lecture is MW 4:00–5:30PM in 103 SEC.

Course Description: This class serves as an introduction to Linear Algebra. Topics include: systems of linear equations, matrices, vector spaces, linear independence, linear transformations, similarity of matrices, eigenvalues, eigenvectors, and diagonalizing matrices. This course may be more abstract than courses you've had in the past (such as Calculus). More emphasis will be placed on understanding the topics and applying them in different situations than in simply doing rote calculations.

Prerequisites: Math 1432 (Calculus II).

Text: Linear Algebra and Its Applications, 4th Ed., by David Lay.

Course Web Page: The course web page is located at

www.math.uh.edu/~tomforde/Math2331S13.html

On the course web page you will find the homework as it is assigned, as well as a copy of this syllabus, dates of quizzes, exam dates, and announcements as they are made.

This Course May Be Different From Your Previous Math Courses:

Linear Algebra is a transitional course often taken after calculus and prior to advanced math courses. In addition to teaching the subject material of Linear Algebra, the course is designed to introduce you to the more abstract methods of advanced mathematics. This is done to prepare you for future math courses, many of which require proof-writing skills. Consequently, you will be expected to do mathematics in a more sophisticated way, and there will be much more emphasis on concepts and thinking than on numerical calculations.

Some Differences You Will Encounter:

- There will be more focus on theory, less focus on computation.
- There is more of an emphasis on asking “Why?”, and justifying answers.
- Understand that the solution is more than just the final answer — it is the process used to arrive at the final answer.
- There will be many more concepts introduced than you have seen in earlier math courses, and these concepts will be introduced at a faster pace.
- You will need to learn to use basic mathematical logic.
- There will be numerous definitions, many that you will need to memorize.
- There will be a great deal of new notation introduced, which you will need to be familiar with. In many ways learning this new notation is like learning a new language.

What will you have to do differently to be successful?

The best thing you can do is be prepared for a new level of expectations. Expect that you may have to adapt your work habits and style of studying.

- **WORK DIFFERENT.** You may have to study in ways you’ve never studied in a math class. For example: read the textbook, review your notes after every class, memorize definitions, understand theorems and proofs.
- **WORK LONGER.** You may need to put in more time than in past math courses. For example: more hours on homework, attending *every* class, do more work on your own (rather than working solely in study groups or at CASA), come to office hours regularly (perhaps unlike lower level courses, in upper level courses it is the best students who come to office hours).
- **WORK HARDER.** You may have to study in ways that are mentally uncomfortable or require hard work. For example: identify your weak points and practice those topics, learn *all* the different ways of thinking about something, learn to ask questions, take greater responsibility for your own learning.
- **WORK SMARTER.** When you spend time working on this class, make sure it is benefiting you. For example: Work homework problems and don’t skip ones you don’t understand, try the problems on your own before looking at solutions or working with others, if you miss problems on quizzes or exams learn how to do them as soon as possible.

Note: Also see the handout “Expectations of Higher Level Math Courses”.

Grading: The final grade for the class will be determined as follows:

Class Participation:	10%
Quizzes:	25%
Exam 1:	20%
Exam 2:	20%
Final Exam:	25%

Please keep in mind that class participation is a significant portion of your grade, and that a 10% difference in your final score in the class can change your grade by an entire letter grade (e.g., an A- to a B-, or a C+ to a D+).

Attendance: It is vital to attend every lecture and pay attention. Some lecture material does not appear in the text. Questions on the exams and quizzes will be drawn from homework, reading, and lectures. I also encourage you to ask questions and participate in class. As stated above, 10% of your final grade will be based on class participation. If you have to miss class for school approved reasons (e.g., school sponsored events, major religious holidays) you need to let me know as soon as possible, and in advance of the missed class, for it to not count against your grade.

Reading Assignments: Reading assignments will be given weekly on the course web page. Completing the reading assignments is just as critical as doing the written homework. You should read the assigned sections *before* we cover them in classes, so you are prepared to answer questions or ask about material you do not understand.

Homework and Quizzes: A list of homework problems will be given every week on the course web page. You should do all the homework problems, and make sure you are comfortable with all of the material that they cover — however, homework will not be collected. Instead, we will have a 10-minute quiz every Wednesday in class. Quizzes cannot be made up at a later time, and missing a quiz results in a score of 0. Your lowest quiz score throughout the semester will be dropped when calculating your final grade. This is meant to account for unexpected absences (e.g., illness or getting caught in traffic). Although homework is not collected, it is vital to do the homework exercises to prepare for the quizzes and exams. You should keep in mind that . . .

“You learn mathematics by doing mathematics.”

Expect to spend at least three hours working on homework outside of class for every hour spent in class. There is a graduate student grader for the course. If you have any issues with the way a quiz or a particular problem is graded, please come to my office to discuss it.

Exams: There will be two exams and one final. All will be held in our usual classroom.

Exam 1: Wednesday, February 20 in class.

Exam 2: Wednesday, March 20 in class.

Final: Monday, May 6, 5–8PM in our usual classroom.

Please bring your Student ID to exams. You may be asked to show it to prove that you are the student whose name is on the exam you turn in.

Calculator Policy: Calculators are not allowed during quizzes or exams.

Makeup Policy: In general, not being present for a quiz or exam results in a score of zero, and you will not be allowed to make up the work. Exceptions may be made in the case of extreme circumstances, such as a documented, serious illness. In the event that you cannot be present to take an exam on the day it is held you need to speak to me *in advance*, and make every attempt to do the work *before* (and not after) the rest of the class.

No Class: There will be no class on Monday, April 22 and Wednesday, April 24 because I will be out of the country to run an international research conference. There will also be no Office Hours during this week, and because I will be traveling internationally, I will have very limited email access.

Due to the research responsibilities of my job, there may be other days (unknown to me at this time) when I need to travel and miss class and/or office hours. On these days I'll arrange for a substitute lecturer so that class will not be canceled. (Although Office Hours will need to be canceled or rescheduled.) I will do my best to minimize the number of times this occurs.

Honor Principal: University of Houston students are expected to adhere to the Academic Honesty Policy (see the Student Handbook for more details). In this course this shall mean the following: Quizzes and exams shall be worked on independently and without the use of your textbook, homework, calculators, or class notes. Moreover, if you are aware of anyone who is cheating or receiving unfair, outside assistance, you are honor bound to inform the instructor of what is occurring. Anyone caught cheating will receive a failing grade in the course and be turned over to the department chair and dean for further disciplinary action.

Special Needs: Any student with a disability or chronic health problem for whom special accommodations would be helpful is encouraged to discuss with the instructor the types of assistance that might be offered. If you have forms from CSD that need to be filled out, you should come to my office to discuss the accommodations being made, and to fill out the required forms.

Policy on Incompletes: Incompletes are given only in very unusual circumstances, and never just to prevent a bad grade or provide the student with more time to prepare for an exam. Many students have misconceptions about what an incomplete is, so I have quoted part of the description from the UH Math Department policies here:

UH Math Department Policy on Incompletes: The grade of I (Incomplete) is a conditional and temporary grade given when students are passing a course but for reasons beyond their control, have not completed a *relatively small* part of all requirements. Students are responsible for informing the instructor immediately of the reasons for not submitting an assignment on time or not taking an examination. . . . The grade of “I” may not be changed to a grade of “W”, but may only be changed to another letter grade. Students should understand that the only way to have an “I” (Incomplete) changed to a passing grade is to fulfill the specific course requirements by the appropriate date and to earn a passing average in the course. Students should not re-register for courses in which they previously received an “I” grade. . . . After the course work is completed, the instructor will submit a change-of-grade form to change the “I” grade to the grade earned. The student should understand that both grades, the original “I” and the earned grade, will appear on the transcript.

Important Dates: There are some important dates you should be aware of. I’ve listed them on the next page.

Important Dates:

January 21, MLK Day, No Class and No Office Hours

February 20, Exam 1 (during class time in our usual classroom)

March 11–16, Spring Break, No Class and No Office Hours

March 20, Exam 2 (during class time in our usual classroom)

March 27, Last Day to Drop a Course with a W

April 22–26, Dr. Tomforde out of the country, No Class and No Office Hours

April 29, Last Day of Classes

May 6, Final Exam (from 5-8PM, in our usual classroom)